IN THE CLAIMS

1. – 4. (canceled)

5. **(currently amended)** A virtual private network construction system for a public data communication network comprising:

first relaying apparatuses with virtual relaying structure generating and multicasting control packets each of which is destined to a multicast address assigned to the virtual relaying structure and contains a unicast address specific to the virtual relaying structure, and

second relaying apparatuses with virtual relaying structure, which receives the control packets from the first relaying apparatuses with the multicast address as destined for the virtual relaying structure, establishing unicast virtual links using the unicast address in the control packets with the first relaying apparatuses which are transmitting sources of the control packets and returning reply packets to the first relaying apparatuses through the unicast virtual links,

whereby a the virtual private network is constructed with the virtual relaying structures that are specific to a same multicast address in the first and the second relaying apparatuses, with the unicast virtual links established between all pairs of the virtual relaying structures and with virtual interfaces receiving packets from outside the public data communication network.

6. **(currently amended)** The virtual private network construction system as claimed in claim 5 wherein the second relaying apparatuses establishing the unicast virtual links authenticate the control packets received.

7. **(currently amended)** The virtual private network construction system as claimed in claim 5 wherein the <u>unicast </u>virtual links comprise IP tunnels.

8. **(currently amended)** The virtual private network construction system as claimed in claim 5 wherein the <u>unicast </u>virtual links comprise MPLS tunnels.

9. **(currently amended)** A relaying apparatus, which terminates virtual private networks within a public data communication network comprising:

virtual relaying structures each of which is preliminarily associated with a multicast address,

a packet unit generating and multicasting control packets each of which is destined to a multicast address and contains a unicast address specific to the virtual relaying structure, and

a link unit receiving the control packets from <u>one or more </u>other relaying apparatuses with the multicast address <u> as destined for the virtual relaying structure</u>, establishing unicast virtual links using the unicast address in the control packets with the <u>one or more </u>other relaying apparatuses which are transmitting sources of the control packets and returning reply packets to the <u>one or more </u>other relaying apparatuses through the <u>unicast </u>virtual links,

whereby a <u>the </u>virtual private network is constructed with the virtual relaying structures that are specific to a same multicast address, with the unicast virtual links established between all pairs of the virtual relaying structures, and with virtual interfaces receiving packets from outside the public data communication network.

10. (original) The relaying apparatus as claimed in claim 9, further comprising means for authenticating the control packets received.

11. (original) The relaying apparatus as claimed in claim 9, further comprising means for generating a routing table for each of a plurality of virtual networks logically independent of one another, and means for performing a packet relay of each virtual network based on the routing table.

12. **(currently amended)** The relaying apparatus as claimed in claim 9 wherein the unicast virtual links comprise IP tunnels.

13. **(currently amended)** The relaying apparatus as claimed in claim 9 wherein the unicast virtual links comprise MPLS tunnels.